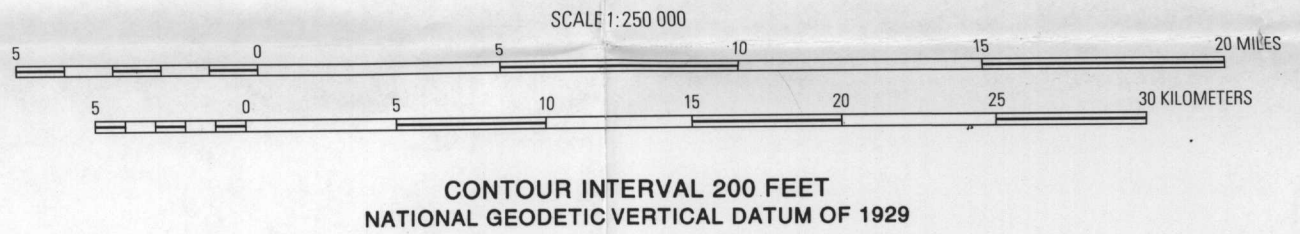


Base from U.S. Geological Survey, 1956 (revised 1982)
Universal Transverse Mercator projection



Geology generalized from Nelson and Grybeck (1980)
Manuscript approved for publication June 26, 1995
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MINERAL RESOURCE POTENTIAL MAP OF THE SURVEY PASS QUADRANGLE, BROOKS RANGE, ALASKA

By

Donald J. Grybeck, Steven W. Nelson, John B. Cathrall,
John W. Cady, and James R. Le Compte

1996

EXPLANATION

Tracts showing mineral resource potential:

Substantial or highly probable potential—Type of deposit(s) and geologic constraints are confidently known; contains known large deposit(s) or numerous small deposits

Probable potential—Type of deposit(s) known or can be confidently inferred; may or may not contain substantial number of known deposits. Definition of tract and its mineral resources may require some speculation or interpretation of subsurface geology

Weak or limited evidence of potential—Commonly certain few known deposits that may not be possible to classify type of deposit; boundaries usually highly subjective

Mineral deposits—Described in detail in Grybeck and Nelson (1981b). Symbols on this map duplicate those on that map

Mineral deposit—Showing type, size, and significant elements or commodities

Pervasively mineralized area—Showing significant elements or commodities

Small **Large**

Stratiform volcanogenic Cu-Zn-Pb-Ag deposit

Polymetallic contact-metamorphic deposit associated with felsic pluton

Deposits other than those characterized above or of unknown type

¹ Distinction between large and small deposits is subjective. Small deposits are those of limited size or apparently limited size. Large deposits are those having substantial mineral resources or reserves or those that have been extensively explored.

DESCRIPTION OF MAP UNITS

UNCONSOLIDATED DEPOSITS

Qu

Surficial deposits, undivided

UNMETAMORPHOSED TO LOW-GRADE METAMORPHOSED SEDIMENTARY ROCKS

Ku

Undivided conglomerate—Quartz-pebble and igneous-pebble conglomerate; some interbedded volcanic sandstone

Tp

Shublik and Sikiluk Formations (Triassic and Permian)—Pink-weathering limestone of Shublik Formation (Triassic) and black slate and chert of Sikiluk Formation (Permian)

Endicott Group (Mississippian and Devonian)—In map area includes:

Mkk

Kayak Shale and Kekikuk Conglomerate (Lower Mississippian)—As mapped, unit includes related undifferentiated clastic rocks and a few outcrops of limestone. In lower (?) part of Lisburne Group

Dk

Kanayut Conglomerate (Upper Devonian)—Non-marine rusty-weathering quartz sandstone, ferruginous mudstone, and black siltstone, and shale. Prominent resistant layers of black-lichen-covered light-gray quartzite. Rare conglomerate

Dhf

Hunt Fork Shale (Upper Devonian)—Dark-gray phyllite with minor quartz mudstone and sandstone. Upper part includes:

Dhfs

Wacke sandstone member (Upper Devonian)—Thick monotonous unit of interbedded rusty-weathering, feldspathic sandstone and dark-gray mudstone and shale. Locally includes thin layers of reddish-gray fossiliferous limestone and calcareous sandstone

Dp

Gray phyllite—Mainly gray, calcareous phyllite and muscovite schist; contains limestone beds up to 20 m thick. Locally consists of lenses of quartz-pebble conglomerate interbedded with orange-weathering, fossiliferous limestone, black, siliceous phyllite, or micaceous schist

DSs

Shajit Limestone (Devonian and Silurian)—Massive white to light-gray granoblastic marble and orange-weathering dolomitic marble. Some interlayered chloritic schist

METAMORPHOSED IGNEOUS ROCKS

Dgr

Gneissic granite—Medium- to coarse-grained biotite-muscovite orthogneiss ranging in composition from granite to alkali-feldspar granite. Commonly well-developed augen; locally cataclastically deformed

Df

Metafelsite—Mainly quartz-albite-feldspar schist; locally porphyroblastic muscovite-biotite-quartz-albite-feldspar rocks that retain igneous textures

pCgr

Granitic schist—Medium-grained porphyroblastic gray biotite-quartz-feldspar schist

MAINLY METAMORPHIC MAFIC IGNEOUS ROCKS OF UNCERTAIN AGE

MzPz

Mafic volcanic rocks, phyllite, sandstone, and chert—Consists mainly of interbeds and fault slices of Devonian(?) to Permian(?) basalt, gneiss, and diabase, gray phyllite, wacke sandstone, minor Triassic radiolarian chert, Mississippian radiolarian chert, and thin beds of Paleozoic limestone. Weakly metamorphosed to unmetamorphosed

Pzm

Mafic volcanic and intrusive rocks—Basalt, gneiss, and altered gabbro. Unmetamorphosed to slightly metamorphosed

METAMORPHIC ROCKS OF UNCERTAIN AGE

MDcp

Calcareous phyllite—Black calcareous phyllite with thin dark-gray limestone lenses

Pzs

Low-grade schist—Chloritoid-bearing quartz-muscovite schist, calcareous quartz-albite-muscovite schist, quartzite, and rare thin limestone beds. Schist locally contains glaucophane

Pzclq

Chloritic quartzite—Chlorite quartzite and chloritic quartz schist

Pzagn

Low- to medium-grade schist and gneiss—Interlayered quartz-muscovite schists and orange-weathering marble. Medium-grade schist and paragneiss with garnet, biotite, and amphibole near plutons

Contact—Dashed where approximately located; dotted where concealed

Fault—Dashed where approximately located or inferred; dotted where concealed; queried where uncertain

Thrust fault—Dashed where approximately located or inferred; dotted where concealed; queried where uncertain. Sawtooth on upper plate

CORRELATION OF MAP UNITS

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Holocene and Pleistocene

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